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SUMMARY OF RESULTS FROM STUDIES OF
46 LOTS OF C.C.C. WOOL

This is a brief summary of the results obtained from studying 46 lots of C.C.C. wool to determine the accuracy of appraisal grade classifications and yields; and to provide a factual basis needed for determining the adequacy of sampling and testing methods for the evaluation, assessment, and standardization of certain wool fiber properties.

Included in this study are sampling, testing, and mill processing data performed on 46 lots of Commodity Credit Corporation wool of various types and grades that were accepted in the price support program during 1952 and 1953. Three mills recognized in industry as quality processors, and who do commission combing, scoured, carded, and combed the raw wool, totaling approximately 607,000 pounds, into wool top. The object was to enable comparisons to be made of visual appraisals, by Government appraisers and a committee of industry wool men, and laboratory test results of the grease wool for the various properties with the products resulting from the conversion of the grease wool into top.

Other factors normally considered in determining the value of a lot of wool were examined. They were as follows: staple length, crimp, noilage or wastiness, soundness, condition, color, and character. The influence of different types of combing (Noble and French), and the influence of combing at different mills on top-noil-waste yield, the grade and length of top, and the noilage of wools of the same original lot were also considered.

Mill top-noil-waste yields were considered to be the firmest foundation possible for evaluating the accuracy and observing the fluctuations of yields as determined from core samples drawn with tubes of various sizes and by using different sampling patterns.

On the basis of the data in this study, yields determined from samples drawn with the 1-1/4 inch coring tube and using either side-core or end-core sampling patterns more accurately reflected the actual mill top-noil-waste yield of the lots than did those samples drawn with the 3-inch or 3/8 inch coring tubes or the visual appraisal method.

Samples drawn with the 3-inch and the 3/8-inch coring tubes had a tendency to overestimate the yield of a lot as compared to mill-top-waste yield.

The 1-1/4 inch side core samples yielded slightly less on the average than the original 1-1/4 inch side cores drawn 2 years previously when the lots were accepted into the support programs of 1952 and 1953. This surprisingly small difference was attributed mainly to storage.

The data demonstrated that lots will either gain or lose some weight during storage; however, on the basis of averages, the change in net grease weight was very slight for 39 of the 46 lots.

The findings suggest that further study is needed into the development of better controlled methods of testing moisture content in commercially scoured wool.

Two bases for establishing the accuracy of the appraisal classifications for grade made in connection with price support operations were used. They were the grade of top produced, and the grade assessed by the industry committee.

The reported findings show that the appraisal grade classifications made in connection with price support operations during 1952 and 1953 were reasonably accurate.

There was a noticeable tendency for the appraisal grade to be finer than the grade of top produced. However, these visual appraisals were made

by non-technical methods and on the basis of visual wool standards under which no physical grade measurements were specified; they compared very closely with the estimates of grade made by members of an industry trade committee. The grades based on laboratory measurement of raw wool (core samples) were more consistent with the grade of top produced from these wools than were the visual estimates of grade made by Government appraisers or the industry committee.

The changes taking place in fineness when raw wool is processed into wool top follow very closely the pattern observed in previous work. The finished top is coarser than the product from which it is combed. The spread in fineness between top and raw wool increases as the wool becomes coarser. The noil is finer than either the top from which it is combed or the product being combed.

All the wools of this study were processed in their original graded condition. The findings suggest that further work should be carried out on wools that have been "skirted" in order to determine their effect on grade.

The measurement of grease wool staple length and the average fiber length of top indicated that the appraisal length classifications made in connection with price support purposes were substantially accurate.

Estimates of the average staple length and range in staple lengths within a graded lot can be obtained with reasonable accuracy by using the techniques employed in this study.

The average normal or unstretched staple length of grease wool was found to be a better indicator of the average fiber length of the top than was the stretched staple length.

The lengths of grease wool estimated by the industry committee compared more closely with the measurement results for average length of normal grease wool staples than for stretched staples.

The crimp-per-inch data appear to fall into distinct divisions according to C.C.C. grade classifications with only slight overlapping between grades, and as the average diameter of the wool becomes coarser the average number of crimps per inch becomes fewer.

The findings concerning staple crimp also point out that while there appears to be a close relationship between number of crimps per inch and grade when the complete range of grades and diameters is considered, crimp should not always be accepted as a criterion of the absolute degree of fineness, especially within limited gradations of fineness.

It would appear from the study of the 9 lots of wool that were divided and combed on both Noble and French combs within the same mill, that there was no top-noil-waste yield advantage for either type of combing within a mill, nor was there an apparent effect on the fineness of top produced by different types of combing.

However, the data did suggest that Noble combing produced a slightly longer top than did French combing and that the Noble-combed wools of all 9 lots were higher in noilage than the French-combed wools.

Nine of the original lots were split into lots of approximately equal size and each was combed at different mills. The testing results indicate that there was no important mill influence on fineness.

There were, however, suggestions of between mill differences in top-noil-waste yield, and a consistent tendency for one mill to produce a longer top than the other mills; also, the noilage of the wools combed at this mill

was usually less than that of the wools combed at the other mills.

The members of the industry appraisal committee were also asked to give their opinions as to the noilage or wastiness, soundness, condition, and color and character of the grease wools they appraised. While the estimates made by this committee were not unanimous, there are indications that the estimates detected the extreme degrees of these characteristics.

The disagreement among estimates indicates a need for more objective measures for evaluating these characteristics.





